OLEVELT

## SPECIAL DATA COLLECTION SYSTEM (SDCS) NTS Event "BULKHEAD", 27 April 1977

G. R. Naylor & M. S. Dawkins

Alexandria Laboratories

Teledyne Geotech, 314 Montgomery Street, Alexandria, Virginia 22314

December 1978

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

Sponsored by

The Defense Advanced Research Projects Agency (DARPA)

ARPA Order No. 2551

Monitored by

AFTAC/VSC

312 Montgomery Street, Alexandria, Virginia 22314



79 01 25 040

Disclaimer: Neither the Defense Advanced Research Projects Agency nor the Air Force Technical Applications Center will be responsible for information contained herein which has been supplied by other organizations or contractors, and this document is subject to later revision as may be necessary. The views and conclusions presented are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Defense Advanced Research Projects Agency, the Air Force Technical Applications Center, or the US Government.

| REPORT DOCUMENTATION PAGE  | READ INSTRUCTIONS                                     |
|--|---|
|  | BEFORE COMPLETING FORM  3. RECIPIENT'S CATALOG NUMBER |
| SDCS-ER-77-136   | A RECIPIENT S CATALOG NOMBER                          |
| 4-TLE (and Subtillo)   | S. TYPE OF REPORT & PERIOD COVERED                    |
| G SPECIAL DATA COLLECTION SYSTEM (SDCS)  | Technical   kept                                      |
| NTS Event "BULKHEAD", 27 April 1977.   | 6. PERFORMING ORG. REPORT NUMBER                      |
| 7. AUTHOR(s)   | 8. CONTRACT OR GRANT NUMBER(s)                        |
| G. R. Naylor & M. S. Dawkins   | F08606-78-C-9007                                      |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS  | 10. PROGRAM ELEMENT, PROJECT TASK                     |
| Teledyne Geotech   | WARPA OLDER-2551                                      |
| 314 Montgomery Street  | VI/8709   |
| Alexandria, Virginia 22314   |   |
| 11. CONTROLLING OFFICE NAME AND ADDRESS  | 2. REPORT DATE  |
| VELA Seismological Center  | 18 December 1978                                      |
| 312 Montgomery Street  | 13. NUMBER OF PAGES                                   |
| Alexandria, Virginia 22314   | 8   |
| 14. MONITORING AGENCY NAME & ADDRESS(If different from Controlling Office)   | 15. SECURITY CLASS. (of this report)                  |
| Defense Advanced Research Projects Agency  | (12) 100  |
| Nuclear Monitoring Research Office   | 154. DECLASSIFICATION/DOWNGRADING                     |
| 1400 Wilson Blvd., Arlington, Virginia 22209   | 15. DECLASSIFICATION DOWNGRAPING                      |
| 16. DISTRIBUTION STATEMENT (of this Report)  |   |
|  |   |
|  |   |
| APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIM  | IITED.  |
|  |   |
|  |   |
| 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from   | om Report)  |
|  |   |
|  |   |
|  |   |
|  |   |
| 18. SUPPLEMENTARY NOTES  |   |
|  |   |
|  |   |
|  |   |
| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number  | )   |
| IS. RET HOROS (Solitimae of Texts of the Indicated of the |   |
|  |   |
|  |   |
|  |   |
|  |   |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  |   |
|  |   |
|  |   |
|  |   |
|  |   |
|  |   |
|  |   |
|  |   |
|  |   |

DD 1 FORM 1473 EDITION OF 1 NOV 65 IS OBSOLETE

495691

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Date Entered)

ASSTRACT

SDCS Event Report No. 136

NTS Event "BULKHEAD", 27 April 1977

The report also contains

This event report contains seismic data from the Special Data Collection System (SDCS), and other sources for the above event. Published epicenter information from seismic observations is:

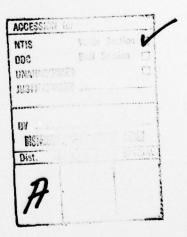
|           | "P" Arrival    | Origin Time             | Latitude      | Longitude | ть  | Ms  |
|-----------|----------------|-------------------------|---------------|-----------|-----|-----|
| LASA      | 15:02:53.2     | Origin time and lished. | d location no | t pub-    | 5.6 | N/A |
| NORSAR    | No bulletin po | ublished.               |               |           |     |     |
| Hagfors   | 15:11:40.7     | 15:00:03                | 37N           | 115W      | 5.7 | N/A |
| SDAC/VELA | 4              | 14:59:59.5              | 36.8N         | 116.0W    | 5.3 | N/A |

All SDCS stations were operational at this time. RK-ON data were retrieved from the digital field tapes, which recorded positive short- and long-period signals. HN-ME also recorded positive short- and long-period signals, and the data were retrieved from the analog back-up system. All other SDCS stations are at NTS, and clipped. Horizontal channels for RK-ON and HN-ME were rotated.

No waveform data were recoverable from the SDAC/VELA detection processor.

LASA data are reported from the LASA Data Center Teleseismic Report, and Hagfors data are from their bulletin.

Scaling factors on plots are millimicrons at 1 Hz for SP and 0.004 Hz for LP (not corrected for instrument response).



STATION DESCRIPTION

| SITE<br>CODE | LOCATION             | SITE COORDINATES<br>DEG MN SECS | ELEVATION<br>METERS | INSTRUMENTATION<br>SHORT-PERIOD LONG- | NTATION<br>LONG-PERIOD |
|--------------|----------------------|---------------------------------|---------------------|---------------------------------------|------------------------|
| HN-ME        | Houlton,<br>Maine    | 46 09 43.0 N<br>067 59 09.0 W   | 213                 | KS36000                               | KS36000                |
| RK-ON        | Red Lake,<br>Ontario | 50 50 20.0 N<br>093 40 20.0 W   | 366                 | 18300                                 | SL210 V<br>SL220 H     |
| OB2NV        | Nevada Test Site     | 37 13 31.0 N<br>116 03 28.0 W   |                     | 18300                                 | N/A                    |
| YF-NV        | Nevada Test Site     | 37 04 06.0 N<br>116 00 07.0 W   | 1271                | 18300                                 | N/A                    |
| YF4iIV       | Nevada Test Site     | 37 04 29.0 N<br>116 02 12.0 W   | 1244                | 18300                                 | N/A                    |
| LASA         | Billings,<br>Montana | 46 41 19.0 N<br>106 13 20.0 W   | 744                 | HS10                                  | 7505A V<br>8700C H     |
| NORSAR       | Kjeller,<br>Norway   | 60 49 25.4 N<br>010 49 56.5 E   | 379                 | HS10                                  | 7505A V<br>8700C H     |

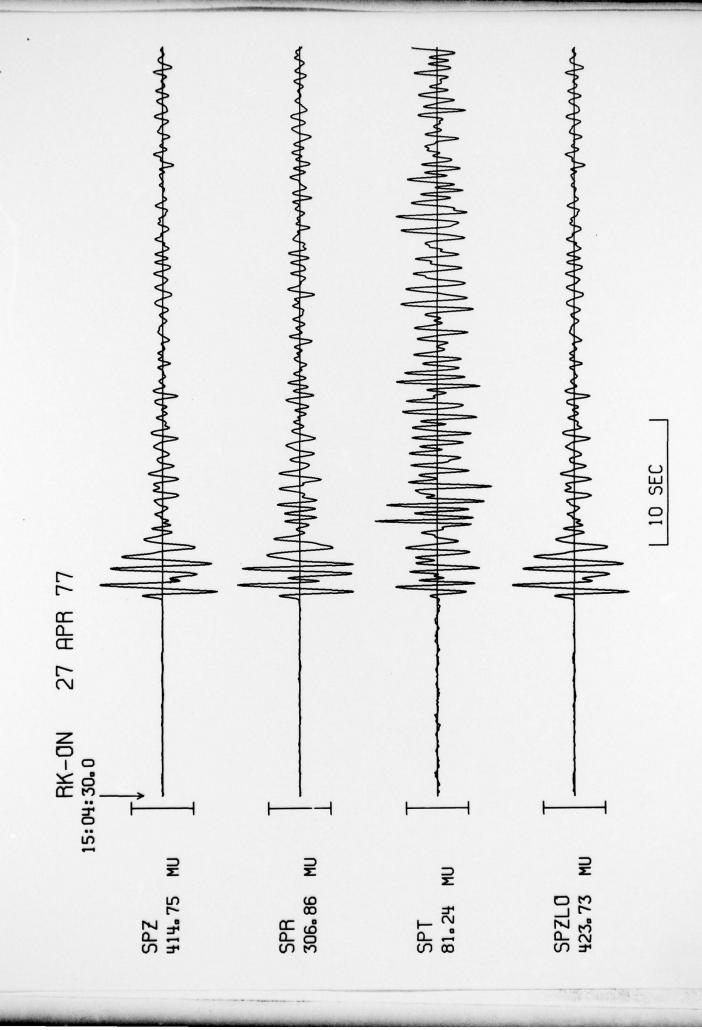
## PREDA -- TRAVEL TIME PREDICTIONS --

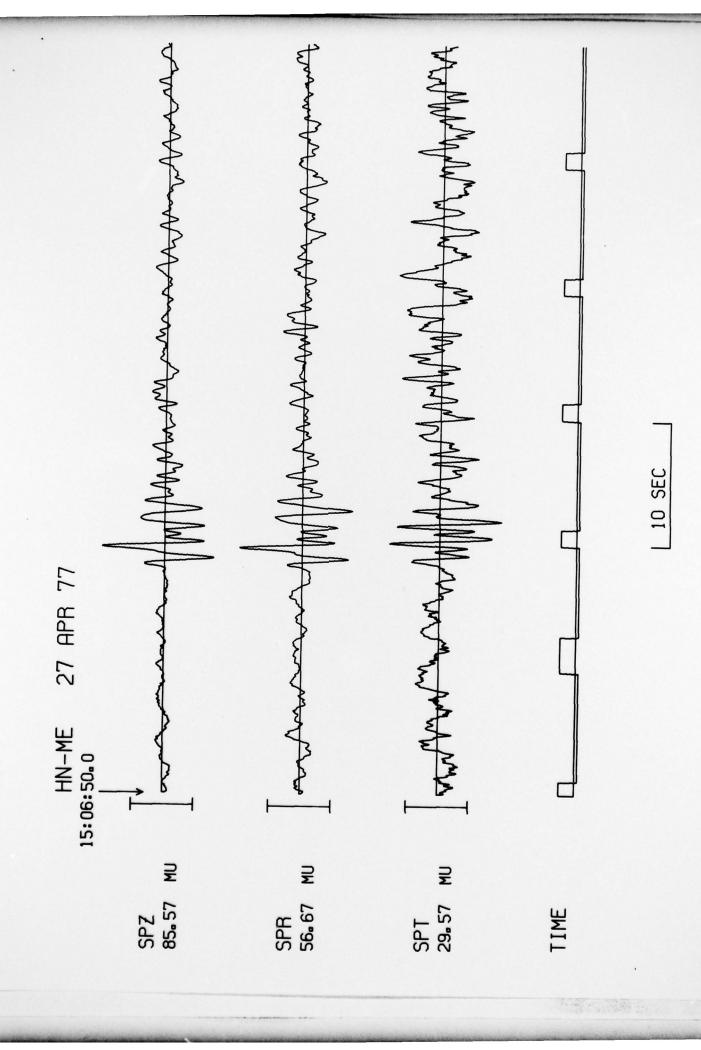
27APR INPUT FOR EVENT 27 APR 77 15:00:00.C 37.000N 116.000W 0KM.

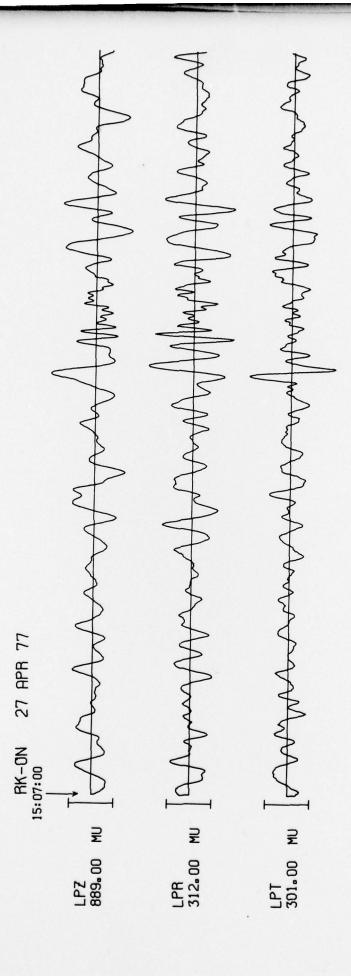
|       |   |    |    | st   | RF( | OKM.)   |       | DIST      |         | AZI     |
|-------|---|----|----|------|-----|---------|-------|-----------|---------|---------|
| STA.  |   |    | T  | IME  | TR. | AV.TIME | DEG   | KM.       | EVT-STA | STA-EVT |
| YF-NV | P | 15 | OC | 01.3 | 0   | :01.3   | 0.07  | 7.5862    | 358.678 | 178.677 |
| YF4NV | P | 15 | 00 | 01.5 | 0   | :01.5   | 0.08  | 8.9117    | 338.538 | 158.516 |
| OB2NV | P | 15 | 00 | 04.3 | 0   | : 04.3  | 0.23  | 25.4909   | 348.443 | 168.408 |
| LAO   | P | 15 | 02 | 52.8 | 2   | :52.8   | 12.11 | 1346.3806 | 33.872  | 220.403 |
| RK-ON | P | 15 | 04 | 45.4 | 4   | : 45.4  | 21.10 | 2346.6204 | 41.990  | 237.640 |
| HN-ME | P | 15 | 07 | 06.8 | 7   | :06.8   | 36.58 | 4067.1921 | 60.108  | 273.026 |
| NAO   | P | 15 | 11 | 32.3 | 11  | : 32.3  | 73.31 | 8151.6133 | 24.170  | 318.013 |
| HFS   | P | 15 | 11 | 40.7 | 11  | :40.7   | 74.76 | 8312.8984 | 23.524  | 320.323 |

## 67 HERRIN TRAVEL TIME TABLES

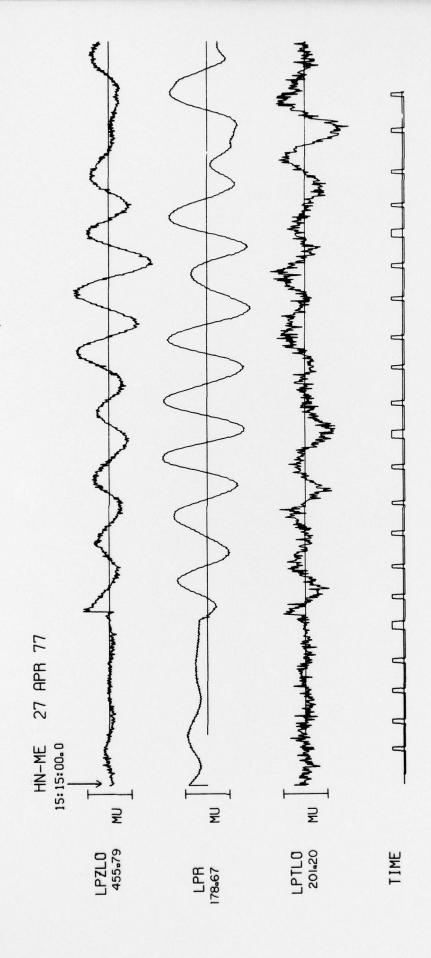
SURF C 2 C 0 0 3. 2 1 0 0. 0 0 0 0 0







120 SEC



120 SEC